**IT Applications Unit 3, AOS 1, Online Communities**

**Transmission media**

**Physical Transmission**

**Twisted – pair cable**

1. What is twisted pair cable?

It is physical transmission cable, made up of 2 wires that are not covered.

1. Why do new networks use CAT 5E or CAT 6 rather than CAT 3?

It is faster allowing more data to travel through at one time

1. What are some disadvantages of CAT 5E and why is it used in so many installations?

It is poorly shielded from electromagnetic interference; it can only run for 100m

1. What type of networks is this cable largely used in?

star

**Coaxial Cable**

1. Describe the characteristics of this cable.

Coaxial cable contains only two wires. The inner wire is surrounded by insulation, and then by copper braid or sometimes aluminium, tin or lead foil, and finally another layer of protective insulation. The braid or foil is effective at shielding internal signals from outside interference. It is commonly used to connect a TV to the aerial.

1. What network is it used in?

Coaxial cable can reliably carry data over approximately 185 meters at 10 Mbps. It is used in bus networks, where all data travels in both directions away from any computer that originates a message.

**Fibre-optic cable**

1. Describe the characteristics of this cable.

Fibre-optic cable consists of special glass or plastic stands that can transmit light pulses. The light is not susceptible to electromagnetic interference and so can reliably carry data for distances of up to two kilometres.

1. Why is fibre-optic cable often used to connect major switches inside buildings as well as between buildings.

Fibre-optic cables is often used to connect major switches inside buildings as well as between building because many organizations need higher speeds within their organization, i.e. a graphic design studio.

1. What are the disadvantages of this cable?

The major disadvantage of using fibre-optic cable is that it is only capable of sending one-way. This is called simplex transmission. This is because the generator is at one end and the receiver at the other. When two-way traffic is needed, two separate strands are used.

**Wireless Transmission,** p 30

**Radio**

1. What is required for radio transmissions to occur?

A transmitter and a receiver

1. Wi-Fi networks use radio waves. What are its advantages over a cable network and what are its disadvantages?

There is less cost and more connections can be made, it is slower and the transmitters still need to be cabled and within range of the server.

1. Describe the characteristics of Bluetooth.

Uses short range radio wave lengths to transmit data up to 10m at 2mpbs.

**Microwaves**

1. Describe the characteristics of microwave transmission.

Wireless transmission media requiring line of sight of the receiver at 4mbps over 5km

1. What are the limitations of microwave transmission?

It is slow and it requires line of sight to the receiver from the transmitter

**Satellite**

1. Satellite transmission can be in what forms?

In radio waves or microwaves.

1. What are the limitations of this form of transmission?

Slow, distance the waves have to travel, and is one of the most expensive.

1. Who might use this form of transmission?

People in remote areas with no other form of connection.

**Infra-red**

1. Describe the characteristics of infra-red transmission.

Uses light waves and requires line of sight .

1. Why is radio wireless networking preferable to infra-red wireless networking?

It is effective up to 5m at very slow data transfer rates and is inferior.